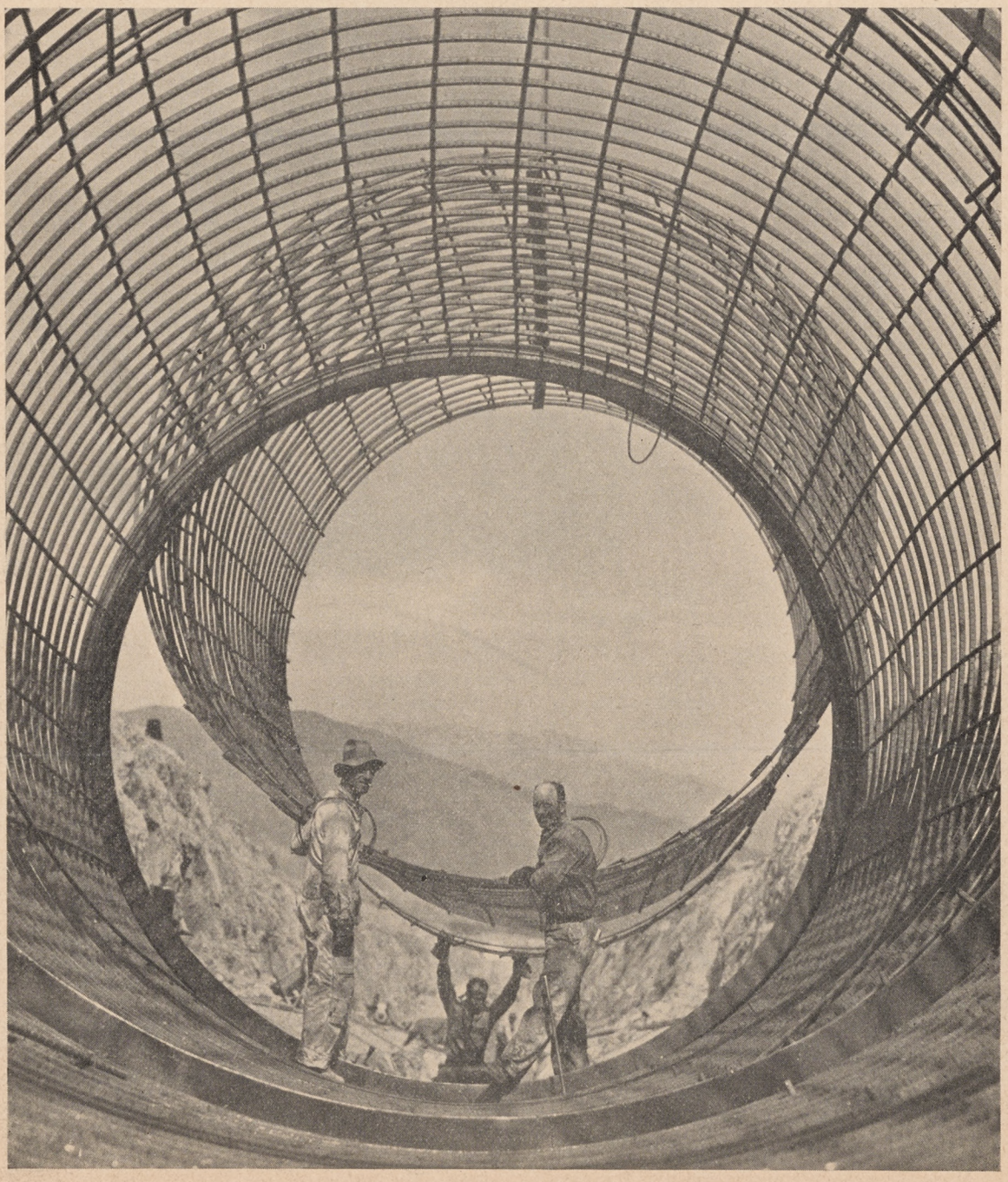
• COLORADO RIVER •

AQUEDUCT NEWS

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Vol. II OCTOBER 20, 1935 No. 20



SIPHON SKELETON

J. F. Shea Company crews placing reinforcement steel on the Casa Loma Siphon

· COLORADO RIVER ·
AQUEDUCT NEWS
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
LOS ANGELES, CALIFORNIA

Published twice monthly in the interest of Field and Office Workers on the Colorado River Aqueduct, and for the information of all other citizens of the Metropolitan Water District.

Vol. II October 20, 1935 No. 20

PROGRESS

As was promised, when the NEWS was launched nearly two years ago, changes in its make-up and content have been made from time to time as experience showed such changes to be desirable in making the publication a more useful magazine.

Evidence of the latest change which has been made in line with this policy will be found on pages 4 and 5 of this issue of the NEWS, in the form of a new, enlarged, and improved progress table.

The old table served very well so long as the tunnels alone monopolized the center of the aqueduct construction stage. But now that the construction of canals, siphons and conduits has crowded into the limelight, it was felt that a more complete statistical picture of the job should be given to NEWS readers.

The new table is not necessarily final, and may be altered from time to time as the need arises. But it is hoped that the new arrangement will make it possible for the NEWS to better serve its purpose—that of recording the swiftly moving story of the world's largest construction project.

APPRECIATION

There is an old saying to the effect that "Names makes news."

It is especially true in a publication such as this one, serving as it does a group of people whose interests, to a large extent, are very much the same. That is why the editor has been so gratified at the revival of item gathering which has taken place along the aqueduct recently. He only wishes that it were possible for him to acknowledge by name those who have been generous enough with their time to take the trouble to send in a news note now and then.

But space won't permit more than a heartfelt "thank you" all around.

A MESSAGE TO Public Employees

"Spanky" McFarland, courtesy Hal Roach Studios, Inc.

THE COMMUNITY CHEST

The annual Community Chest drive among Metropolitan Water District employees was fully under way last week, with every indication of one hundred per cent success from the River to the Los Angeles office.

In connection with the drive, the following notice has been issued by General Manager Weymouth:

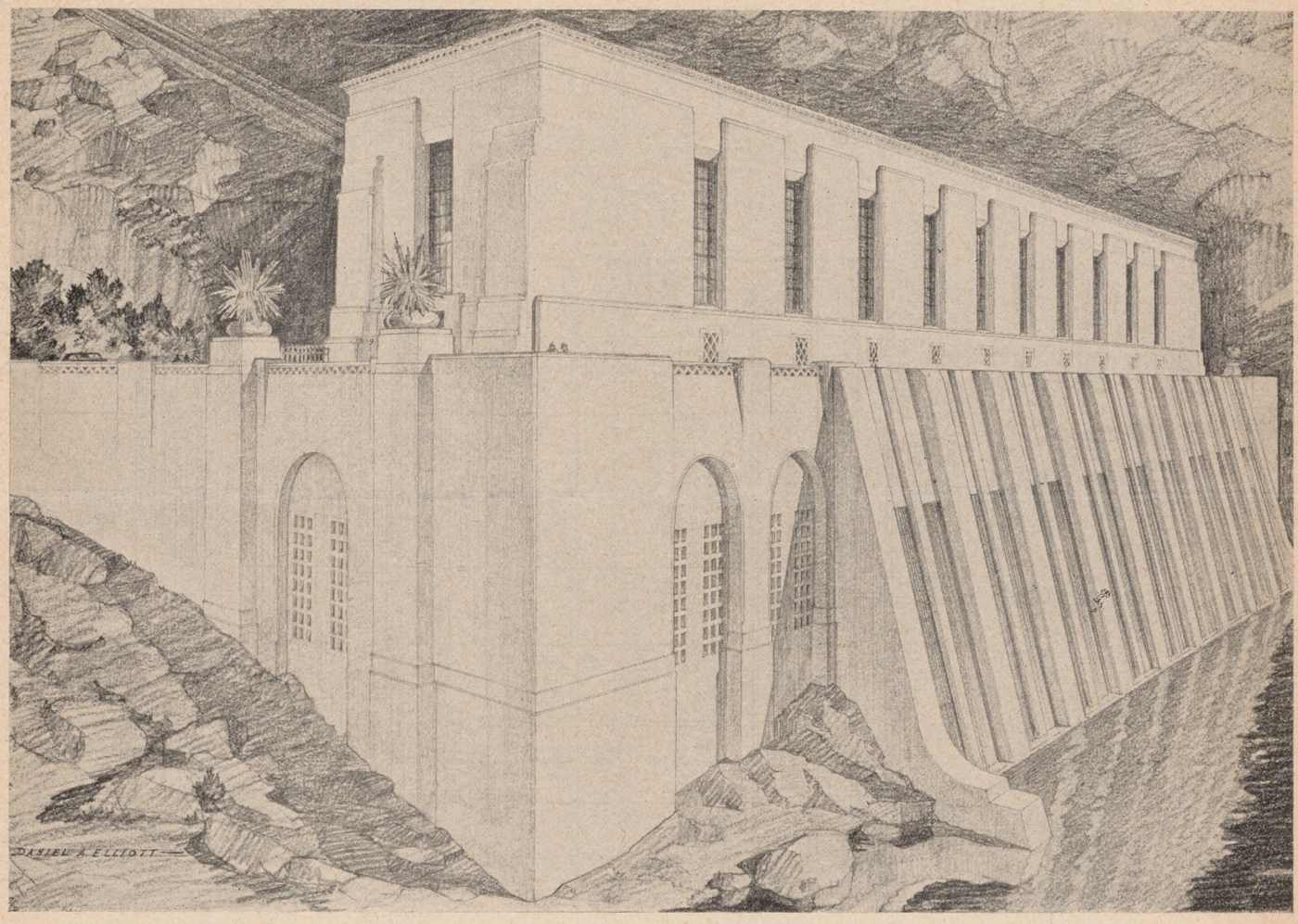
"Following the practice adopted last year, the Community Chests or other recognized welfare organizations operating in the various cities within the District this year, once more, have requested the Los Angeles Community Chest to act as the medium of contact between these organizations and the Metropolitan Water District of Southern California.

"The Los Angeles Community Chest has communicated with the Board of Directors of the District, asking the District to provide ways and means by which every member of the District may be given a full opportunity to make his or her contribution to the Community Chest.

"Division heads and camp superintendents are being called upon to direct and handle a solicitation of funds among the employees in their divisions or camps. You will be provided with the necessary pledge cards and instructions.

"Employees making contributions to the Community Chests have the full right to allocate their contributions to their home city. Special pledge cards have been provided for District employees, and these cards have a space where the employee may designate the city and charity organization to which his or her contribution is to be forwarded."

The drive is being carried forward under the leadership of Don J. Kinsey, assistant to the general manager, J. M. Gaylord, chief electrical engineer, and J. M. Luney, assistant controller.



Intake Pumping Plant.

AQUEDUCT PUMPING PLANT BIDS CALLED

That the aqueduct soon will enter a new and important phase is indicated by advertisements issued by the District calling for bids on the construction of two of the five pumping plants to be erected on the main line of the project.

The bids, to be opened on November 19, are for the construction of the Intake plant on the Colorado River, about a mile above Parker dam, and the Gene plant, at Gene Wash reservoir, about two miles south of the Intake and two miles west of the river.

In addition, bids for furnishing the pumps for all five stations have been asked by the District and will be opened December 3. The specifications describe these as "single suction, single stage, vertical shaft, volute type" centrifugal pumps, capable of discharging from 200 to 215 cubic feet per second at the head specified for the particular lift for which it is designed.

Each of the five plants ultimately will contain nine pumping units of about 200 second feet capacity each. However, as the full pumping capacity will not be required at the beginning, it was decided to install three units initially and add other units as the demand for water increases. This progressive plan of installation allows for one spare unit which will always be ready for an emergency.

Since the water carried by the aqueduct will be lifted approximately 1634 feet, and since an ultimate average capacity of 1500 cubic feet per second is involved, intensive study has been given to this phase of the project's operation, not only by members of the District staff but also in the special pump testing laboratory established at California Institute of Technology.

The following tabulation gives the names of the five pumping stations, the average lift, or pumping head in feet, including losses, and the synchronous 60-cycle speeds at which motors will drive pumps at each:

	Average Head	Rev. per Minute
Intake plant	294 ft.	400
Gene plant	310 ft.	400
Iron Mountain	146 ft.	300
Eagle Mountain	440 ft.	450
Hayfield	444 ft.	450

Each manufacturer submitting a bid will be required, in order to obtain consideration of a proposal, to deliver to the Caltech laboratory for testing a model pump with a capacity of 5 to 5.4 cubic feet per second at a speed six and one-third times that of the full size pump. Each successful bidder in turn will be required to furnish a model pump delivering 7 to 7.6 cubic feet per second at five and one- third times the speed of the full size pump.

Manufacturers are required to guarantee the efficiency of the pumps as designed by them, this efficiency to be calculated under test to the nearest one-

(*Continued on Page* 8)

CONSTRUCTION PROGRESS

SEPTEMBER 15 TO OCTOBER 15, 1935

TUNNEL EXCAVATION (MILES)

	Completed	Remaining
Aqueduct	79.53	12.29
Distribution	4.30	11.39
Total	83.83	23.68

CANAL, CONDUIT AND SIPHON (MILES)

	Completed	Remaining
Excavation	62.70	80.81
Concrete	23.26	119.20

* TUNNEL LINING (MILES)

	Completed	Remaining
Aqueduct	17.15	74.68
Distribution	0	15.69
Total	17.15	90.37

* Arch considered to equal 0.9 of completed section.

TUNNEL PROGRESS

CONTRACTOR	TUNNEL	LENGTH IN FEET	EXCAVATION IN FEET					LINING IN FEET					
			NUMBER OF SHIFTS	AVERAGE PER SHIFT	THIS PERIOD	TOTAL TO DATE	REMAINING	ARCH OR INVERT	NUMBER OF SHIFTS	AVERAGE PER SHIFT	THIS PERIOD	TOTAL TO DATE	REMAINING
AQUEDUCT—CONTRACT													
WALSH CONSTRUCTION CO.	COLORADO RIVER	5,482		Completed		5,482	0	Arch				5,475	7
								Invert				0	5,482
	COPPER BASIN NO. 1	705		Completed		705	0	Arch	13	53.5	696	696	9
	COPPER BASIN NO. 2	11,568		Completed		11,568	0	Arch	10	67.9	679	679	10,889
	WHIPPLE MOUNTAIN	(32,254)				(31,003)	(1,251)					0	(32,254)
	East from Adit	18,352	90	9.0	811	17,101	1,251						
	West from Adit	13,902	66	9.0	596	13,902	0						
WINSTON BROTHERS	IRON MT (E. PORTION)	(23,587)				(21,985)	(1,602)					0	(23,587)
	East from Shaft	9,844	78	6.1	479	8,564	1,280						
	West from Shaft	13,743	78	6.9	539	13,421	332						
UTAH CONSTRUCTION CO	IRON MT. (W. PORTION)	16,172		Completed		16,172	0					0	16,172
WINSTON BROTHERS	COXCOMB (From E. Portal)	17,795	78	8.1	635	15,401	2,394					0	17,795
BRODERICK & GORDON	E. EAGLE (From W. Portal)	9,442	64	9.2	589	7,140	2,302					0	9,442
	W. EAGLE (E. PORTION)	(15,845)				(15,785)	(60)					0	(15,845)
	East from Adit	7,871				7,841	30						
	West from Adit	7,974				7,944	30						
L. E. DIXON & BENT BROS.	W. EAGLE (W. PORTION)	10,649		Completed		10,649	0	Arch	43	33.4	1,436	1,436	9,213
HUNKIN & CONKEY CON. CO.	HAYFIELD NO. 1	9,733		Completed		9,733	0	Arch	22	27.6	606	9,723	10
								Invert	6	99.5	597	597	9,136
J. F. SHEA CO., INC.	COTTONWOOD	20,105		Completed		20,105	0	Arch	3	59.3	178	20,105	0
								Invert	3	212.3	637	637	19,468
HAMILTON & GLEASON	BERNASCONI	6,220		Completed		6,220	0	Arch	75	19.7	1,473	6,220	0
								Invert				0	6,220
DRAVO CONTRACTING CO.	VALVERDE	(38,015)				(36,521)	(1,494)						
	East Portal to Shaft 3	21,415		Completed		21,415	0	Arch	84	43.2	3,628	14,705	23,310
	West from Shaft 3		69	4.0	274	8,964	0	Invert			0	7,791	30,224
	East from Adit	12,067	69	4.8	332	3,103							
	West from Adit	4,533	84	4.2	352	3,039	1,494						
	TOTALS	217,572	676	6.8	4,607	208,469	9,103	Arch	270	32.2	8,696	59,039	158,533
								Invert	9	137.1	1,234	9,025	208,547
AQUEDUCT — FORCE ACCOUNT													
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	EAST COACHELLA	(96,605)				(93,377)	(3,228)					(675)	(95,930)
	East Portal to Fargo Adit	32,130		Completed		32,130	0	Arch	26	26	675	675	31,455
	West from Fargo Adit	31,024	78	7.7	602	13,189	3,228						
	East from Berdoo Adit		78	6.9	541	14,607							
	Berdoo Adit to West Portal	33,451		Completed		33,451	0						
	1000 PALMS NO. 1 (From W.P.)	16,058	78	10.5	820	13,818	2,240					0	16,058
	1000 PALMS NO. 2	3,838		Completed		3,838	0	Arch			0	3,832	6
	WIDE CANYON NO. 1	14,305		Completed		14,305	0	Arch	72	55.2	3,977	7,747	6,558
	WIDE CANYON NO. 2	848		Completed		848	0	Arch			0	848	0
	SEVEN PALMS (From E. Prtl)	4,810		Completed		4,810	0	Arch			0	3,421	1,389
	(From W. Prtl)	11,920	78	8.8	690	11,881	39					0	11,920
	LONG CANYON (From E. Prtl)	15,295	[illegible]	8.8	686	11,662	3,633					0	15,295
	BLIND CANYON	6,848			0	5,580	1,268					0	6,848
	MORONGO NO. 1	5,712			0	5,364	348					0	5,712
	MORONGO NO. 2	1,820				0	1,820					0	1,820
	SAN JACINTO	(67,563)				(24,341)	(43,222)					0	(67,563)
	Cabazon Shaft to East Portal	8,553	90	4.2	382	4,077	4,476						
	West from Cabazon Shaft	43,511	90	4.6	413	6,883	34,878						
	East from Potrero Shaft		90	6.3	570	1,750							
	West from Potrero Shaft	15,499	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						

Directory

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DIVISION ENGINEERS

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Division 2 ..... W. E. Whittier
Division 3 ..... John Stearns
Division 4 ..... B. C. Leadbetter
Divisions 5 & 6 ..... J. B. Bond
Distribution ..... R. B. Diemer

SUPERINTENDENTS

(Main Aqueduct Tunnels)

Colorado River, Copper Basin and Whipple Mt. Tunnels, Walsh Construction Co., W. A. Huntington and L. M. Ramey, Tunnel Supts.

Coxcomb Tunnel and Iron Mt. shaft, Winston Bros., E. A. Bernard, Gen. Supt.; F. T. Hillman and R. B. Johnson, Tunnel Supts.

Iron Mt. Tunnel, West Portal, Utah Construction Co., Ben Arp, Gen. Supt.

East Eagle Mt. Tunnel and West Eagle Mt. Tunnel, east portion, Broderick & Gordon, C. J. Kavanagh, Gen. Supt.

West Eagle Mt. Tunnel, west portion, L. E. Dixon and Bent Bros., P. G. Guinn, Gen. Supt.

Hayfield Tunnel No. 1, Hunkin & Conkey Constr. Co., G. B. Hoag, Gen. Supt.; F. Backlund, Tunnel Supt.

Cottonwood Tunnel, J. F. Shea Co., Inc., Gilbert Shea, Gen. Mgr.; Wallace Young, Master Mechanic.

Coachella Division, B. C. Leadbetter, Gen. Supt.

Fargo Adit, E. Coachella Tunnel—Dist. Force Acct., Neil O'Donnell

Berdoo Adit, E. Coachella Tunnel—Dist. Force Acct., John Jackman

Pushawalla Adit, and Berdoo

SOUTHERN CALIFORNIA	MORONGO NO. 1	5,712				0	5,364	348					0	5,712
	MORONGO NO. 2	1,820					0	1,820					0	1,820
	SAN JACINTO	(67,563)					(24,341)	(43,222)					0	(67,563)
	Cabazon Shaft to East Portal	8,553	90	4.2	382		4,077	4,476						
	West from Cabazon Shaft	43,511	90	4.6	413		6,883	34,878						
	East from Potrero Shaft		90	6.3	570		1,750							
	West from Potrero Shaft	15,499		4.1	367		3,574	3,868						
	From West Portal			1.7	153		8,057							
	TOTALS	245,622	840	6.2	5,224	189,824	55,798		Arch Invert	98	47.5	4,652	16,523	229,099
													0	245,622

DISTRIBUTION—CONTRACT

WEST CONSTRUCTION CO.	MONROVIA NO. 1 (From W.P.)	7,865	86	9.1	779	4,505	3,360						0	7,865
	MONROVIA NO. 2 (From Jct. 1)	940			0	298	642						0	940
	MONROVIA NO. 3	(32,105)				(4,892)	(27,213)						0	(32,105)
	East from Adit	11,340	28	12.0	336	336	11,004							
	Fish Canyon Adit	1,746	31	6.9	213	1,746	0							
	West from Adit		27	12.4	335	335								
	From West Portal	20,765	86	10.9	939	4,221	16,209							
DIXON, BENT BROS. & JOHNSON	MONROVIA NO. 4 (From W.P.)	8,096				0	8,096						0	8,096
J. F. SHEA CO., INC.	SIERRA MADRE (From E. Prtl)	6,450	21	13.0	273	273	6,177						0	6,450
DIXON, BENT BROS. & JOHNSON	PASADENA EAST	5,504	18	26.9	484	484	5,020						0	5,504
	PASADENA (From West Portal)	12,139	56	21.0	1,178	12,139	0						0	12,139
	SAN RAFAEL No. 1 (From W.P.)	4,077	20	6.8	135	135	3,942						0	4,077
	SAN RAFAEL No. 2 (From E.P.)	5,661			0	0	5,661						0	5,661
	TOTALS	82,837	373	12.5	4,459	22,726	60,111						0	82,837

CANAL, CONDUIT AND SIPHON PROGRESS—PROGRESS PERIOD SEPT. 28 TO OCT. 12

SCHED. NO.	CONTRACTOR	FEATURES	Length in Feet	EXCAVATION—Feet			CONCRETE—Feet			BACKFILL—Feet		
				Period	To Date	Remain'g	Period	To Date	Remain'g	Period	To Date	Remain'g
1	AQUEDUCT CONSTR. CO.	Conduit and Siphons	22,025	600	10,085	11,940		0	22,025		0	22,025
2	BARRETT & HILP AND MACCO CORP.	Conduit and Siphons	30,569	700	10,000	20,569		0	30,569		0	30,569
3		Canal and Siphons	40,849	0	36,824	4,025		0	40,849		0	12,695
4	JAHN & BRESSI CONSTR. CO.	Canal and Siphons	53,218	3,290	31,945	21,273		0	53,218		0	3,075
5		Canal and Siphons	53,588	173	43,325	10,263	4,897	21,473	32,115	0	930	3,090
6	WOOD AND BEVANDA	Siphon	15,520		0	15,520		0	15,520		0	15,520
7	BARRETT & HILP & MACCO Cor.	Canal and Conduit	27,707	270	20,300	7,407	1,743	10,573	17,134	1,795	4,845	7,505
8	WOOD AND BEVANDA	Canal and Siphons	49,579	2,092	39,946	9,633	4,569	30,022	19,557	0	4,419	3,591
9	UTAH CONSTRUCTION CO.	Canal, Conduit and Siphons	47,399	2,490	17,810	29,589	802	8,012	39,387	150	300	5,985
10	AQUEDUCT CONSTR. CO.	Canal and Siphons	41,505	90	31,475	10,030	1,146	7,236	34,269	480	480	4,410
11		Canal, Conduit and Siphons	44,507		0	44,507		0	44,507		0	10,462
12	THREE COMPANIES. INC.	Conduit and Siphons	33,446	1,298	22,369	11,077	560	3,609	29,837	0	3,155	30,291
13	AQUEDUCT CONSTR. CO.	Canal, Conduit and Siphons	33,270		0	33,270		0	33,270		0	4,075
14	THOMPSON-STARRETT CO.	Conduit and Siphon	32,366	2,123	15,150	17,216	0	4,791	27,575	0	4,220	28,146
15		Conduit and Siphons	35,849		0	35,849		0	35,849		0	35,849
16		Conduit and Siphons	19,359		0	19,359		0	19,359		0	19,359
17	M. W. D.—FORCE ACCT.	Conduit and Siphons	22,119	2,081	3,416	18,703		0	22,119		0	22,119
18	J. F. SHEA CO., INC.	Conduit and Siphons	27,564		0	27,564		0	27,564		0	27,564
18J	MORRISON-KNUDSEN CO.	Siphons	9,811	450	5,760	4,051	116	3,520	6,291	0	3,170	6,641
19	J. F. SHEA CO., INC.	Conduit and Siphon	37,464		0	37,464		0	37,464		0	37,464
20		Siphons	18,561	200	16,100	2,461	1,294	13,253	5,308	1,420	1,700	6,861
20 A & B	GRIFFITH COMPANY (Outlet Channel Unlined)	Siphons	936	0	705	231		0	936	940	0	936
21		Siphons	14,585	0	6,320	8,265	991	4,753	9,832		3,580	11,005
22		Siphon	7,225		0	7,225		0	7,225	980	0	7,225
23		Conduit and Outlet Channel	38,711	790	19,500	19,211	926	15,571	17,590		14,050	19,111
	TOTALS		757,732	16,647	331,030	426,702	17,044	122,813	629,369	5,765	50,849	375,573

COMPLETED FEATURES

TUNNELS

CONTRACTOR	TUNNEL	Length in Miles	Work Started	Work Completed
MORRISON-KNUDSEN CO.	MECCA PASS Nos. 1, 2 & 3	1.13	7-17-33	2-10-35
WEST CONSTRUCTION CO.	WHITEWATER Nos. 1 & 2	1.94	7-18-33	4-15-35
SHOFNER & GORDON	HAYFIELD No. 2	1.03	7-8-33	7-27-35
TOTALS		4.10		

CANAL, CONDUIT AND SIPHON

CONTRACTOR	FEATURE AND NAME OR SCHEDULE	Length in Miles	Work Started	Work Completed
UNITED CONC. PIPE CO.	LITTLE MORONGO SIPHON	0.13	2-27-34	8-20-34
M.W.D.—FORCE ACCT.	FAN HILL COND. & SIPHON	0.32	10-21-33	11-19-34
GRIFFITH COMPANY	SCHEDULE NO. 20-C	1.33	5-3-35	9-14-35
	TOTALS	1.78		

Coachella Division, B. C. Leadbetter, Gen. Supt.

Fargo Adit, E. Coachella Tunnel—
Dist. Force Acct., Neil O'Donnell

Berdoo Adit, E. Coachella Tunnel—
Dist. Force Acct., John Jackman

Pushawalla Adit, and Berdoo Aggregate plant,
East Coachella Tunnel—
Dist. Force Acct., F. A. Weller

Thousand Palms—
Dist. Force Acct.,.....John Austin

Wide Canyon—
Dist. Force Acct., ...
.....Kenneth MacIsaac

Long Canyon—
Dist. Force Acct.,.....C. E. Sides

San Jacinto Tunnel, District Force Account, C. R. Rankin, Gen. Supt.; Frank Laird, Tunnel Supt.; E. E. McCabe, W. L. Taylor, and Jack Stone, Tunnel Supts.

Bernasconi Tunnel, Hamilton & Gleason Co., Harry S. Stocker, Gen. Supt.

Valverde Tunnel, Dravo Contr. Co., R. W. Remp, Gen. Supt.; H. C. Richardson, Asst. Gen. Supt.; Fred Youmans, Tunnel Supt.; John Will, Concrete Supt.

(Distribution Tunnels)

Monrovia tunnels, West Construction Co., H. E. Carleton, Gen. Supt.; O. V. Humason, Peter Brisbois, and Angus MacDonnell, Tunnel Supts.

Pasadena tunnel, San Rafael tunnels Nos. 1 and 2, and Monrovia tunnel No. 4, L. E. Dixon Co., Bent Bros., Inc., and Johnson, Inc., H. J. King, Gen. Supt.; D. L. Simpson, Supt.

(Canal, Siphon, Conduit)

Schedules Nos. 1, 1A, 1B, 10, 10A, 10B, 11, 11A, 11B, 11C, 13, 13A, and 13B, Aqueduct Construction Co., C. M. Elliott, Gen. Supt.; Charles Harlowe, Jr., Excav. Supt., and Charles Clapp, Supt.

Schedules Nos. 2, 2A, 2B, 3, 3A, 3B, 7 and 7A, Barrett & Hilp and Macco Corp.; H. W. McKinley, Supt.

Schedules Nos. 4, 4A, 5 and 5A, Jahn & Bressi Construction Co., Joseph Muscolo, Gen. Supt.; Dominick Bressi, Asst. Gen. Supt.; C. M. Ellison, Concrete Supt.

Schedules Nos. 6, 8, 8A and 8B, Clyde W. Wood and M. J. Bevanda, A. F. Weesner, Gen. Supt.; L. L. Green, Excav. Supt.; A. V. Fisher, and V. S. Price, Concrete Supts.

Schedules Nos. 9, 9A, 9B and 9C, The Utah Construction Co., Ben Arp, Gen. Supt.; E. C. Caldwell, Excav. Supt.

Schedules Nos. 12 and 12A, Three Companies, Inc., C. J. Kavanagh, Supt.

Schedules Nos. 14, 15 and 16, Thompson-Starrett Co., Inc., Rodney Smith, Resident Engineer; William Hayes, Excav. Supt.; Thomas McIlvenna, Concrete Supt.

Schedule 18J, Morrison-Knudsen, J. O. Young, Gen. Supt.

Schedules Nos. 18, 19, and 20, J. F. Shea Co., Inc., H. F. Remmerbohm, Supt.

Schedules Nos. 20A, 20B, 20C, 21, 22 and 23, The Griffith Co., Harry Davis, Supt.

GENERAL MANAGER REVIEWS ACTIVITIES OF MONTH ON AQUEDUCT

(EDITOR'S NOTE: The following is a brief summary of some of the District's activities as set forth in the monthly report of General Manager & Chief Engineer F. E. Weymouth, filed with the Board of Directors in October, covering work done during September.)

Miscellaneous Activities Division

One thousand five hundred and fifteen employment applicants were cleared through the District's Labor Employment Office as eligible during the month of September. Of this number, 412 were made available in response to requisitions on force account work and 1103 were made available for aqueduct contractors. Certificates of Registration (permanent identification cards) were issued to 1340 applicants; a total of 15,315 such certificates had been issued up to and including September 30.

Field Engineering and Construction

Testing Laboratory— Two one-week courses of instruction were given during September to a total of 36 men from all divisions who will be used as inspectors on concreting operations. This brings the total number of men receiving instruction in concrete procedure up to 152.

Operation of Utilities—During September a total of 6,380,562 kwhr of power was used, about 14,271 (long distance) telephone calls were handled, and 3,573,146 cubic feet of water was delivered.

Aqueduct Construction — (See table on pages 4 and 5 for current progress figures.)

Civil Engineering Divison

Specifications — During September twelve sets of specifications were issued and bids were received under nine sets.

Contracts—Eighteen contracts in the aggregate amount of $3,605,532.35 were executed during the month.

Design — The preparation of reinforcement steel detail drawings and bending lists for main aqueduct structures occupied a large part of the drafting room force. Work has been started on the design of the structures that will be required in connection with the water measuring devices that will be installed on the main aqueduct.

Hydrography—Automatic gages are being installed at the West Portal of San Jacinto tunnel and at the Potrero shaft in order to increase the accuracy of water pumpage measurements.

Distribution Division

Temporary District field headquarters for the Cajalco reservoir work were established at Arlington. At the end of the month the District telephone line had been completed to the dam site, water and power lines of the contractor's camp had been installed, the contractor's office building and powder magazine were completed, and his shop building was 90 per cent complete. Excavation of the dam foundation and of the approach cut at the west end of the diversion tunnel was started on September 23.

Electrical Engineering Division

All drawings were completed for Specifications No. 133 for the construction of Intake and Gene pumping plants for the initial installation of three pumps in each plant. Work was continued on the investigation of the internal velocity distribution in centrifugal pumps. Additional equipment for valve testing was ordered, and the work is in progress in connection with alterations to the piping system necessary to provide for testing the larger model pumps to be submitted by the pump contractors. Proposals for turbines, governors, and generators for Boulder power plant were analyzed and recommendations made. Agreements were completed with six utility companies for relocation of lines where there is interference with the construction of the upper feeder of the aqueduct distribution system.

Personnel Division

The net turnover for all divisions for August was 12.35 per cent, compared with 11.10 for July.

Purchasing Division

Purchase orders issued during September amounted to approximately $321,541, representing an issuance of 1630 orders.

Accounting & Costkeeping

Actual costs to September 30, 1935, amounted to $52,854,698.06, covering works and activities, the total cost of which is estimated at $120,341,234.

Safety On the Aqueduct

By T. W. OSGOOD
Safety Engineer

The Contractors Executive Safety Committee held its 19th monthly meeting at Tauquitz Lodge, Idyllwild, on October 16, 1935. Dinner was served at 1:00 P. M. and the business session convened at 2:30 P. M.

The subjects presented for discussion were: Powder car haulage; tunnel ventilation, respirators and protective goggles; hard toe shoes; precautions when operating equipment near high voltage electric lines; safe truck transportation of workmen to and from work; organization and functioning of safety committees; aids to the prevention of cement burns; and preventative measures for boils and infected pimples.

The marked downward trend of accidents on the Colorado River Aqueduct project has been strongly influenced by the activities of this Committee.

The personnel of the Committee embraces executive officers and supervisors of the contractors' organizations, the Metropolitan Water District, Industrial Accident Commission, and compensation insurance companies. Mr. G. J. Shea, Manager of J. F. Shea Co., Inc., is Annual Chairman; T. W. Osgood, Chief Safety Engineer of The Metropolitan Water District, is Executive Secretary, and R. L. Wahl of Winston Bros. Company, is Recording Secretary.

Moving in at Cajalco! This Griffith Company shovel is excavating the approach cut to the outlet portal of the diversion tunnel.

NEWS FROM FIELD AND OFFICE

Assistant Engineer John P. Densmore has been made a senior inspector on Division 1.

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Inspector F. F. Predergast has received an assistant engineer's rating on Division 2.

* * *

William E. Lennen and Glenn Lucas have received senior inspectors' ratings on Division 4.

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The rating of Virgil E. Rowes has been changed from instrumentman to inspector on Division 2.

* * *

Allison B. Polley, formerly batching plant and gunite inspector on Division 3, is now a placing inspector on the same division.

* *

Another addition to the San Jacinto West Portal population occurred with the arrival last week of a boy at the John Grant home.

* * *

Chainmen Thurlow Kendall, Willis T. Lind, R. D. Wing, and Robert H. Kirkman are now rated as instrumentmen on Division 4.

* * *

Inspectors L. S. Overbeck, Don DeWitt, Wm. H. Dunster, and Fred T. Jenkins, all have received senior inspectors' ratings on Division 6.

* * *

Reports have been received from the West Portal at San Jacinto that Frank Swanson has been passing out cigars to celebrate the arrival of a bouncing baby boy, Walter Wayne, at the Swanson home.

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Another milestone was passed on October 8 when David May, Division No. 2 office engineer, counted back on his fingers and discovered that he had been on the Aqueduct job an even ten years.

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Morris Hayes, Harold Churck, W. K. Foerster, J. H. Ludwig and Wallace D'Ray, members of the Distribution Division engineering staff at the Upland office, have been transferred to the Cajalco Dam job.

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Among those on Division 2 who were recently given inspectors' ratings are Lawrence C. Keagle, formerly a chainman; Leslie T. Brooks, formerly a rodman; Frank W. Anding, formerly a draftsman, and William F. Selle, formerly a chainman.

P. J. Lynch, formerly an assistant engineer on Division 6, has been transferred to Division 4 with a general foreman's rating.

Aqueduct Temperatures
September 15 to 30, incl.

	Max.	Min.
Div. 1	109°	73°
Div. 2	107°	67°
Div. 3	106°	66°
Div. 4	104°	72°
Divs. 5 & 6	102°	48°

Flying during the month of October for the best camp records for safety and progress on the Coachella Division for September are:

Safety Flag—Pushawalla.

Progress Flag— Thousand Palms.

On the San Jacinto tunnel, Potrero camp won the safety flag for September.

Talk about hiding your light under a bushel! Here's a man who's fiddling away his time building a dam, when he might just as well be posing for tooth paste advertisements. Seriously, the gent above with the nice smile is none other than D. H. Moore, vice-president of the Griffith Company, who's running the construction end of the work at the Cajalco dam and reservoir job.

Louis Prosin, formerly a groundman with the Operating Division, is now an inspector on Division 1.

* * *

Telephone operator J. J. Crane is now rated as a maintenance electrician (telephone) in the Operating Division.

* * *

Chainman John W. Peeler of Divisions 5 & 6, has been transferred to Division 2 with an instrumentman's rating.

* * *

Slim Matthews, walker for Shea on the Sierra Madre job, and Martin S. Boss who is digging diversion tunnels for Shea at Parker Dam, are said to have a bet of a twelve dollar hat to the one who holes through first. Rumor has it that Slim has left his happy home and is living right at the portal.

* * *

The more literary minded of the Division No. 2 employees are proud to announce the arrival of a San Bernardino County Branch Library in camp. An excellent assortment of books is now available and additional books are provided as individual requests are received. Librarians are Mesdames Doolittle, Tucker and Hill.

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Professor and Mrs. Hill have returned to Division No. 2 Headquarters from Banning, where Byron spent his sabatical leave as associate professor of "Concology" under Doctor Tuthill of the Concrete Testing Lab. He now has an opportunity to study the results of his labors by observing the behavior of his former charges, now full fledged inspectors.

* * *

Here's a sad echo of the World's Series. It seems the boys at Berdoo conducted a pool on the second game and A. F. McCarthy drew No. 1. Fred Fauble dropped in just in time to hear McCarthy's loud complaints, and, after some bargaining bought the number for a dime—the pool being a 25 cent one. The game ended 8-to-3, making 11, which was the winner. To top this off, Mac sent Jack Armstrong up to the Accounting Department to pick him a winner on the October 4 game. Jack drew No. 1 for him. Knowing that Mac would protest that, it was agreed that the ticket could be thrown back in the box and another one drawn. Jack explained this to Mac, who agreed that he certainly did not want No. 1 again. The score ended 6-to-5, making 11 again!

Three More Tunnels Holed Through

At each end of the main aqueduct line, and at a point near the middle, tunnel crews reached three important milestones during a ten-day period this month.

Near the eastern end of the line, Walsh Construction Company crews, working west from the adit of the Whipple Mountain tunnel, on October 7 drove through to the west portal a distance of 13,913 feet from the adit junction. Now that excavation west has been completed, only 1251 feet remains to be driven on this entire 32,265-foot bore. This is located at the extreme eastern end of the tunnel.

On October 9, at the other end of the main line, Dravo Contracting Company crews holed through between No. 3 and No. 4, a distance of 12,067 feet. This leaves only 1,494 feet of the entire 38,015-foot bore to be excavated. The unexcavated section is located at the extreme western end of the tunnel.

At Seven Palms tunnel, on October 17, District force account crews, working from the west portal, broke through the last rock wall separating them from the 4,810-foot section which previously had been driven from the east portal. The distance from the west portal was 11,920 feet.

Pump Stations

(*Continued from Page* 3)

tenth of one per cent from the power input, total pumping head and quantity of water delivered, determined by A. S. M. E. and A. I. E. E. standards.

As liquidated damages for failure to meet the guarantee, the contractor will be penalized from $5000 to $15,000 for each per cent of deficiency below the guarantee, varying according to the head under which the pump will operate. A similar bonus will be allowed for each per cent the pumps exceed the guaranteed efficiency.

Each of the five pumping plants has been planned and designed to meet the particular conditions at the respective locations, which vary in many respects.

Heavy substructures will be necessary to receive the huge pumps, and these have been designed in reinforced concrete. The superstructures and roofs housing the operating equipment will be steel, framed with reinforced concrete walls and reinforced concrete roof slabs. Exterior walls will be poured in forms faced with fibre board to provide a smooth surface, and will be left with the natural concrete texture. The roofs are to be covered with mission tile. Modernistic lines have been followed in the architectural treatment of the buildings.

Aqueduct Picture Given Many Showings

How interested Southern California citizens are in the Metropolitan Water District's Colorado River Aqueduct is evidenced by the unprecedented demand among motion picture exhibitors for a showing of the Metropolitan Aqueduct News, the new talking picture on the project, according to Roy Scrivner, who is handling the booking of the film.

Since more than 100 bookings have been made by Southern California motion picture theaters, space will not permit the printing of a complete schedule.

Call your neighborhood theaters to learn the dates on which the Metropolitan Aqueduct news picture will be shown.

Oct. 31 Deadline

Although the number of District employees taking out life insurance policies under the special concession granted by the John Hancock Company has exceeded expectations, it has been decided that applications will be received up to the end of October.

Here are two examples of the holing-through operations which occurred along the aqueduct during the past few days. On the left is shown the closure between Valverde No. 3 and No. 4. The two gentlemen in the foreground are W. H. Gamill, of the Dravo Contracting Company and Ed Wintz of the District. The picture on the right was taken immediately after the holing-through of Seven Palms tunnel, and in the foreground are the boys who did the job.